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EXAMINER	
FERGUSON, MARISSA L	

ART UNIT	PAPER NUMBER
2854	

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,604	SATO ET AL.	
	Examiner	Art Unit	
	Marissa L. Ferguson-Samreth	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,34-57,70-93,106-117 and 124-135* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *34-57,70-93 and 124-135* is/are allowed.

6)☒ Claim(s) *1-9,11-20,22,106,107,109-113 and 115-117* is/are rejected.

7)☒ Claim(s) *10,21,108 and 114* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Takahashi et al. (US Patent 6,117,257).

Regarding claims 1 and 2, Takeda teaches at least one print drum (1), at least one press roller (20,26,28 and 29) facing a print drum for pressing the recording medium against a print drum (Figures 1,11 and 15-17), wherein the press roller comprises when configured to press the other side of the recording medium against a print drum (Abstract), an elastic body having a fluorine compound layer on a surface thereof, a fluorine compound layer comprising a tube and wherein the fluorine compound layer is formed of a coating (column 8, lines 31-33 and lines 47-49 and many references throughout the patent) and a roller that can be made with a rubber (Column 4, Lines 15-18).

However, Takeda does not teach a fluorine compound layer closely fitted on the surface of the rubber. Takahashi et al. teaches a cylindrical substrate provided with a outermost layer of a fluorine resin tube. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as

taught by Takeda to include a fluorine compound layer as taught by Takahashi, since Takahashi teaches that it is advantageous to provide a heat shrinkable fluorine layer in order to provide tight adhesion between the fluorine surface and the substrate layer underneath.

Regarding claim 3, Takeda discloses the rubber and fluorine compound layer as mentioned above, and the method of how the fluorine compound layer was made holds no patentable weight in an apparatus claim when it does not result in any distinguishing structure.

Regarding claim 4, Takeda teaches a cleaning means (Column 9, Lines 26-27 and elements 50,58 and 90) for removing ink deposited on a surface of said press roller.

2. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Takahashi et al. (US Patent 6,117,257) as applied to claim 4 above, and further in view of Kanno (US Patent 6,718,872).

Takeda and Takahashi et al. both teach the claimed invention with the exception of a cleaning means located between a position for transferring an image to a recording medium and a position of refeeding and a drive means causing a roller to rotate at a peripheral speed different from a peripheral speed of a roller. Kanno teaches a printer with duplex capabilities with a porous print drum (cleaning means (26) located between a position for transferring an image and a position of refeeding (25) and a cleaning drive means for operating a roller at a different peripheral speed (Column 6, Lines 51-56). It would have been obvious to one having ordinary skill in the art at the time the invention

was made to further modify the invention as taught by Takeda in view of Takahashi et al. to include a cleaning means at the claimed location and a drive means as taught by Kanno, since Kanno teaches that it is advantageous to thoroughly and properly clean the surface of the press roller in an effective amount of time.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Takahashi et al. (US Patent 6,117,257) and Kanno (US Patent 6,718,872) as applied to claims 1 and 6 above, and further in view of Tomono et al. (US Patent 5,400,065).

Takeda, Takahashi et al. and Kanno all teach the claimed invention with the exception of a porous cleaning roller. Tomono et al. teaches a porous cleaning roller (element 8 and figure 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Takeda in view of Takahashi et al. and Kanno to replace the cleaning means thereof with a porous cleaning roller as taught by Tomono et al., since Tomomo et al. teaches that it is advantageous to not scratch the surface of any element the roller may come in contact with.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Takahashi et al. (US Patent 6,117,257) as applied to claim 4 above, and further in view of Ozaki et al. (US Patent 5,207,157).

Takeda and Takahashi et al. both teach the invention claimed including a cleaning means comprising a blade (elements 58,90 located on Figures 16-17) that

contacts a press roller (20), however he does not explicitly disclose a coating means for coating a small amount of liquid on a surface of a press roller. Ozaki et al. teaches a coating means for coating a small amount of liquid (136) on the surface of a cleaning roller (Column 10, Lines 39-41 and 61-65). By coming in contact with the cleaning roller, the press roller will inherently be coated with a small amount of liquid. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Takeda in view of Takahashi et al. to include a coating means as taught by Ozaki et al., since Ozaki et al. teaches that it is advantageous to effectively clean the surface of a roller of all dust and dirt particles.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Takahashi et al. (US Patent 6,117,257) as applied to claim 1 above, and further in view of Ito (JP 410166705).

Takeda and Takahashi et al. both teach the invention claimed with the exception of a roller pressed against a press roller by preselected pressure for removing ink deposited on the surface of the press roller by causing the ink to be transferred to the roller. Ito teaches a cleaning device (10) pressed against a transfer body (4) for the cleaning the surface and in turn transfers an image to the paper (Solution). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Takeda in view of Takahashi et al. to include roller pressed against a surface for transferring an image as taught by Ito, since Ito teaches that it is advantageous to be in a state with less oily components.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Takahashi et al. (US Patent 6,117,257) and Ito (JP 410166705) as applied to claim 9 above, and further in view of Tanaka et al. (JP 2001-239733).

Takeda, Takahashi et al. and Ito all teach the invention claimed with the exception of a roller that is formed of either one of rubber and metal and has a smooth surface. Tanaka et al. teaches a rubber cleaning roller (element 24 and Paragraph 0045). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Takeda in view of Takahashi et al. and Ito to replace the cleaning roller thereof with a rubber cleaning roller as taught by Tanaka et al., since Tanaka et al. teaches that rubber easily removes dust particles from paper.

7. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Takeda (US Patent 5,937,750) and Takahashi et al. (US Patent 6,117,257).

Regarding claims 12-14, Asai et al. teaches a stencil printer with a first and a second image, which are to be respectively transferred to one side and the other side of a sheet-like recording medium, side by side in a circumferential direction of a print drum, wrapping said master around said print drum, pressing said sheet-like recording medium against said print drum with a press roller to thereby print said first image on

said one side, and then pressing said sheet-like recording medium against said print drum with said press roller to thereby print said second image on said other side (Solution). Asai et al. does not teach an elastic body having a fluorine compound layer on a surface thereof, a fluorine compound layer comprising a tube and wherein the fluorine compound layer is formed of a coating.

Takeda teaches an elastic press roller (20) with an outer surface comprised of a fluorine resin or fluorine rubber compound comprising a fluorine compound is formed by a coating (Column 8, lines 31-33 and lines 47-49 and many references throughout the patent). However, Takeda does not explicitly disclose a fluorine compound layer comprising a film tube. Takahashi et al. teaches a cylindrical substrate provided with a outermost layer of a fluorine resin tube.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as taught by Asai et al. to replace the press roller thereof with a press roller as taught by Takeda, since Takeda teaches that it is advantageous to provide a stable transfer of the image.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as taught by Asai et al. to include a fluorine compound layer as taught by Takahashi, since Takahashi teaches that it is advantageous to provide a heat shrinkable fluorine layer in order to provide tight adhesion between the fluorine surface and the substrate layer underneath.

Regarding claim 15, Asai et al., teaches the claimed invention with the exception of a cleansing means for removing ink deposited on the surface of a press roller. Takeda teaches a stencil printer with a cleaning means (Column 14, Lines 12-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as taught by Asai et al. in view of Takahashi et al. to include a cleaning means thereof as taught by Takeda, since Takeda teaches that it is advantageous to properly and thoroughly clean the surface of the roller.

8. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Takeda (US Patent 5,937,750) and Takahashi et al. (US Patent 6,117,257) as applied to claims 12 and 15 above, and further in view Kanno (US Patent 6,718,872).

Asai et al., Takeda and Takahashi et al. all teach the claimed invention with the exception of a cleaning means located between a position for transferring an image to a recording medium and a position of refeeding and a drive means causing a roller to rotate at a peripheral speed different from a peripheral speed of a roller. Kanno teaches a printer with duplex capabilities with a cleaning means (26) located between a position for transferring an image and a position of refeeding (25) and a cleaning drive means for operating a roller at a different peripheral speed (Column 6, Lines 51-56). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Asai et al. in view of Takeda and Takahashi et al. to include a cleaning means at the claimed location and a drive means as taught

by Kanno, since Kanno teaches that it is advantageous to thoroughly and properly clean the surface of the press roller in an effective amount of time.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Takeda (US Patent 5,937,750), Takahashi et al. (US Patent 6,117,257) and Kanno (US Patent 6,718,872) as applied to claim 17 above, and further in view of Tomono et al. (US Patent 5,400,065).

Asai et al., Takeda, Takahashi et al. and Kanno all teach the claimed invention with the exception of a porous cleaning roller. Tomono et al. teaches a porous cleaning roller (element 8 and figure 8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Asai et al. in view of Takeda, Takahashi et al. and Kanno to replace the cleaning means thereof with a porous cleaning roller as taught by Tomono et al., since Tomomo et al. teaches that it is advantageous to not scratch the surface of any element the roller may come in contact with.

10. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Takeda (US Patent 5,937,750) and Takahashi et al. (US Patent 6,117,257) as applied to claim 15 above, and further in view of Ozaki et al. (US Patent 5,207,157).

Asai et al., Takeda and Takahashi et al. all teach the invention claimed including a cleaning means comprising a blade (elements 58,90 located on Figures 16-17) that

contacts a press roller (20) and a roller pressed against a press roller at a preselected pressure as taught by Takeda, however he does not explicitly disclose a coating means for coating a small amount of liquid on a surface of a press roller. Ozaki et al. teaches a coating means for coating a small amount of liquid (136) on the surface of a cleaning roller (Column 10, Lines 39-41 and 61-65). By coming into contact with the cleaning roller, the press roller will inherently be coated with a small amount of liquid. It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Asai et al. in view of Takeda and Takahashi et al. to include a coating means as taught by Ozaki et al., since Ozaki et al. teaches that it is advantageous to effectively clean the surface of a roller of all dust and dirt particles.

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Takeda (US Patent 5,937,750), Takahashi et al. (US Patent 6,117,257) and Ozaki et al. (US Patent 5,207,157) as applied to claim 20 above, further in view of Tanaka et al. (JP 2001-239733).

Asai et al., Takeda, Takahashi et al. and Ozaki et al. all teach the invention claimed including a blade (58,90) as taught by Takeda. However, they do not explicitly teach a roller that is formed of either one of rubber and metal and has a smooth surface. Tanaka et al. teaches a rubber cleaning roller (element 24 and Paragraph 0045). It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Asai et al. in view of Takeda,

Takahashi et al. and Ozaki et al. to replace the cleaning roller thereof with a rubber cleaning roller as taught by Tanaka et al., since Tanaka et al. teaches that rubber easily removes dust particles from paper.

12. Claims 106,107 and 109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Hiroshi et al. (JP 05-70010).

Regarding claims 106 and 107, Takeda teaches at least one print drum (1), at least one press roller (20,26,28 and 29) facing said print drum for pressing the recording medium against said print drum (Figures 1,11 and 15-17) and wherein said press roller comprises when configured to press the other side of the recording medium against said print drum (Abstract) and an elastic body having a fluorine compound layer on a surface thereof, a fluorine compound layer comprising a tube and wherein the fluorine compound layer is formed of a coating (column 8, lines 31-33 and lines 47-49 and many references throughout the patent). However, he does not explicitly disclose a number of conical projections, each having a peak provided with a radius of 0.04 mm or below, at a mean pitch of 0.4 mm or below and peak angles of 100° or below. Hiroshi et al. discloses conical projections (elements 15), however he does not explicitly disclose a peak radius, a peak angle and a mean pitch.

However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.* It would have been obvious to have

some degree of mean pitch, peak angle and a peak radius between the projections, since such a modification would result in a press roller having the required roughness so to aid in the transportation of a recording medium.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as taught by Takeda to replace the press roller thereof with a press roller with projections as taught by Hiroshi et al., since Hiroshi et al. teaches that it is advantageous to facilitate the adhesion of the paper onto the roller.

Regarding claim 109, Takeda teaches a cleaning means (Column 6, Lines 12-14 and elements 50,58 and 90) for removing ink deposited on a surface of said press roller (Column 10, Lines 61-65). 21.

13. Claims 110 and 111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Hiroshi et al. (JP 05-70010) as applied to claims 106 and 109 above, and further in view of Kanno (US Patent 6,718,872).

Takeda and Hiroshi et al. all teach the claimed invention with the exception of a drive means causing a roller to rotate at a peripheral speed different from a peripheral speed of a roller. Kanno teaches a printer with duplex capabilities a cleaning drive means for operating a roller at a different peripheral speed (Column 6, Lines 51-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Takeda in view of Hiroshi et al. to include a drive means that operates at different speeds as taught by

Kanno, since Kanno teaches that it is advantageous to thoroughly and properly clean the surface of the press roller in an effective amount of time.

14. Claims 112 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Hiroshi et al. (JP 05-70010).

Asai et al. teaches a stencil printer with a first and a second image, which are to be respectively transferred to one side and the other side of a sheet-like recording medium, side by side in a circumferential direction of a print drum, wrapping said master around said print drum, pressing said sheet-like recording medium against said print drum with a press roller to thereby print said first image on said one side, and then pressing said sheet-like recording medium against said print drum with said press roller to thereby print said second image on said other side (Solution). Asai et al. does not teach an a number of conical projections, each having a peak provided with a radius of 0.04 mm or below, at a mean pitch of 0.4 mm or below and peak angles of 100° or below. Hiroshi et al. discloses conical projections (elements 15), however he does not explicitly disclose a peak radius, a peak angle and a mean pitch.

However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.* It would have been obvious to have some degree of mean pitch, peak angle and a peak radius between the projections, since such a modification would result in a press roller having the required roughness so to aid in the transportation of a recording medium.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as taught by Asai et al. in view of Takahashi et al. to replace the press roller thereof with a press roller with projections as taught by Hiroshi et al., since Hiroshi et al. teaches that it is advantageous to facilitate the adhesion of the paper onto the roller.

15. Claim 115 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (JP 2002-172839) in view of Hiroshi et al. (JP 05-70010) as applied to claim 112 above, and further in view of Takeda (US Patent 5,937,750).

Asai et al. in view of Hiroshi et al. teaches the invention claimed with the exception of a cleaning means for removing ink deposited ink on the surface of an ink roller. Takeda teaches a cleaning means (Column 14, Lines 12-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention as taught by Asai et al. in view of Hiroshi et al. to include a cleaning means thereof as taught by Takeda, since Takeda teaches that it is advantageous to properly and thoroughly clean the surface of the roller.

16. Claims 116 and 117 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Patent 5,937,750) in view of Hiroshi et al. (JP 05-70010) as applied to claims 112 and 115 above, and further in view of Kanno (US Patent 6,718,872).

Takeda in view of Hiroshi et al. all teach the claimed invention with the exception of a drive means causing a roller to rotate at a peripheral speed different from a

peripheral speed of a roller. Kanno teaches a printer with duplex capabilities a cleaning drive means for operating a roller at a different peripheral speed (Column 6, Lines 51-56).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the invention as taught by Takeda in view of Hiroshi et al. to include a drive means that operates at different speeds as taught by Kanno, since Kanno teaches that it is advantageous to thoroughly and properly clean the surface of the press roller in an effective amount of time.

Allowable Subject Matter

17. Claims 124-135, 34-57 and 70-93 are allowed.

18. Claims 10, 21, 108 and 114 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 35-37, 47-49, 71-73 and 83-85, the prior art does not teach or render obvious an elastic body comprising rubber while said film comprises at least one of fine glass grains and fine ceramic grains.

Regarding claims 10, 21, 44 and 80, the prior art does not teach or render obvious an elastic roller having an adhesive surface while said elastic roller comprises rubber and is caused to rotate by said press roller.

Regarding claims 34, 46, 70 and 82, the prior art does not teach or render obvious wherein a press roller comprises, when configured to press the other side of the sheet-like recording medium against a print drum, an elastic body having a surface formed with fine projections.

Regarding claims 108 and 114, the prior art does not teach or render obvious wherein said projections are formed on an elongate sheet member having a preselected width and spirally wrapped around the surface of a press roller.

Regarding claims 124, the prior art does not teach or render obvious a printer operable in a duplex print mode for printing an image on one side of a sheet-like recording medium and then printing, within 3 seconds, an image on the other side of said sheet-like recording medium, said printer comprising a press roller comprising, when configured to press the other side of the sheet-like recording medium against said print drum, a surface including a stepped portion formed by a number of spherical bodies, each having a radius of 0.1 mm or below, arranged with a maximum difference in height of 0.03 mm or above and a mean pitch of 0.15 mm or above between nearby highest peaks.

Regarding claims 130, the prior art does not teach or render obvious a printer operable in a duplex print mode by forming in a master a first and a second image, which are to be respectively transferred to one side and the other side of a sheet-like recording medium, side by side in a circumferential direction of a print drum, wrapping said master around said print drum, pressing said sheet-like recording medium against said print drum with a press roller to thereby print said first image on said one side,

and then pressing, within 3 seconds, said sheet-like pressing member against said print drum with said press roller to thereby print said second image on said other side, said press roller comprises a surface including a stepped portion formed by a number of spherical bodies each having a radius of 0.1 mm or below, arranged with a maximum difference in height of 0.03 mm or above and a mean pitch of 0.15 mm or above between nearby highest peaks.

Response to Arguments

19. Applicant's arguments with respect to claims 1-22, 34-57 and 70-93 have been considered but are moot in view of the new ground(s) of rejection.

20. Applicant's arguments filed 2/27/06 have been fully considered but they are not persuasive. With regards to comments on pages 26 and 27, the examiner would like to note that the Hiroshi reference does not explicitly disclose the peak radius, peak angle and/or mean pitch. /this can be seen with the machine translation provided with this office action. The prior art was simply used to provide a reference that teaches conical projections and to state that even though the reference does not teach the values, it would be obvious that the conical projections would have a peak radius, peak angle and/or a mean pitch,

21. With respect to claims 34-45, 46-57 and 70-93, the examiner notes that a proper prior art reference was not found to reject the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa L. Ferguson whose telephone number is (571) 272-2163. The examiner can normally be reached on (M-T) 6:30am-4:00pm and every other (F) 7:30am-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marissa L Ferguson
Examiner
Art Unit 2854

MFS
May 4, 2006

Daniel J. Colilla
Primary Examiner
Art Unit 2854